

JAN 28 1982

CHEMICAL SYSTEMS
DIVISION



Stauffer Chemical Company

P.O. Box 2648 / 36963 Amrhein Rd. / Livonia, Michigan 48150 / Phone (313) 261-3710

JPM 2550
Sodium Hypophosphite

October 29, 1976

DOUGLAS AIRCRAFT COMPANY
3855 Lakewood Boulevard
Long Beach, California 90846

Attn: Mr. M. J. Veneroso, Dept. C1-726 (52-11)
Materials Handling & Packaging Engineering

Dear Mr. Veneroso:

Enclosed are our Product Safety Information and Product Data Sheet for Sodium Hypophosphite which you recently requested.

Sodium Hypophosphite is a non-regulated chemical and is not restricted for shipment by surface or air modes of transport.

If you have any questions, please contact me.

Sincerely,

STAUFFER CHEMICAL COMPANY
Metal Finishing Department

J. R. Crain
J. R. Crain
Technical Manager

JRC/jj

attach. — *To Bill Jordan*

SODIUM HYPOPHOSPHITE, MONOHYDRATE ELECTROLESS NICKEL GRADE



NOMENCLATURE	Sodium Hypophosphite, Monohydrate
GRADE	Electroless Nickel
MOLECULAR WEIGHT	105.99
DESCRIPTION	Sodium hypophosphite, monohydrate is a clean, white, free-flowing, crystalline material. Decomposition from heat produces phosphine, a toxic flammable gas. Do not expose to temperatures above 200°F. Keep away from open flames. Contact with flames or severe heat may cause explosion.
COMPOSITION	<p>Sodium hypophosphite, monohydrate ($\text{NaH}_2\text{PO}_2 \cdot \text{H}_2\text{O}$): 101% minimum—106% maximum</p> <p>Arsenic (As): 1 ppm maximum</p> <p>Iron (Fe): 10 ppm maximum</p> <p>Heavy metals (as Pb): 5 ppm maximum</p> <p>Lead (Pb): 1 ppm maximum</p>
TYPICAL PROPERTIES	<p>pH (50% solution): 5.8</p> <p>Sieving: Through 10 mesh 100%</p> <p>Bulk Density (pounds per cubic foot): 63</p> <p>Solubility (water): Clear solution</p>
CONTAINERS	100-lb 325-pound net weight Fiber Drums
USES	<p>Chemical: Reducing agent or antioxidant.</p> <p>Metal Finishing: Electroless plating solutions and electroplating baths.</p> <p>Plastics: Electroless plating of plastics.</p>

All descriptive information on this product is based on the latest data available at the time of publication. The user should consult the product data sheet for the most current information.



STAUFFER CHEMICAL COMPANY
INDUSTRIAL CHEMICAL DIVISION
Westport, Connecticut 06880

BOE-C6-0204253

Product Safety Information

SODIUM HYPOPHOSPHITE

I. Physical and Chemical Properties

Formula: $\text{NaH}_2\text{PO}_2 \cdot \text{H}_2\text{O}$

Color: white

Molecular Weight: 106

Odor: none

Physical State: Crystalline Solid
(70°F-14.7 psig)

Water Miscibility:

Melting Point (°F): decomposes
violently

Soluble: 50% at 25°C
70% at 60°C

Flash Point (°F): >300 (PH₃)

pH 50% Solution: $5.8 \pm .7$

Bulk Density of material: 63 lb/ft.³

II. Chemical Reactivity

Strong reducing agent, slow to react at room temperature in many cases. Reduces aqueous cupric ions to cuprous state and metallic copper, nickel salts to nickel.

III. Stability

Thermally unstable above 150°C, decomposing to form phosphine (toxic, inflammable gas) and sodium phosphates. The salt is a powerful explosive when heated with oxidizing agents such as chlorates, nitrates, etc. Decomposes in hot alkaline solutions to form phosphine and phosphates. Store in a cool place and keep containers closed when not in use.

IV. Fire Hazard

This product is not flammable; however, when subjected to temperatures in excess of 150°C decomposition produces flammable toxic phosphine.

V. Firefighting Techniques

If sodium hypophosphite is involved in a fire, water is suitable. Extreme caution should be exercised due to the possible presence of the decomposition product, phosphine. Fresh air breathing equipment should be used to protect fire fighters.

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VI. Health Hazards

No serious health hazards are associated from exposure to sodium hypophosphite. Acute systemic or local effects have not been recognized. No form of chronic toxicity has been recognized, either systemic or local. When heated to 150°C, sodium hypophosphite decomposes, evolving phosphine gas which is toxic and spontaneously flammable. Sodium hypophosphite is a strong reducing agent, and when mixed with strong oxidizing agents it forms a powerful explosive which can react violently when heated.

1. Ingestion

Sodium hypophosphite is excreted rapidly after ingestion. However, ingestion of large quantities might be accompanied by symptoms of gastrointestinal irritation such as nausea, vomiting and diarrhea.

2. Eye Effects

No specific action on eye tissues has been recognized. Non-specific irritation may result if the crystals or solutions enter the eyes.

3. Dermal Effects

Dermal effects from skin contact with the material have not been reported.

4. Inhalation

Respiratory or systemic effects have not been recognized from inhalation of sodium hypophosphite. The major inhalation hazard would be from phosphine resulting from thermal decomposition.

5. Threshold Limit Value

No threshold limit value for sodium hypophosphite has been established by the American Conference of Governmental Industrial Hygienists.

6. Warning Properties

No warning properties are associated with sodium hypophosphite. However, a garlic-like odor indicates that phosphine is being produced.

VII. First Aid

First aid should be given immediately. Prompt treatment may greatly decrease the severity of the effect. In case of injury, the patient should be referred to a physician.

1. Ingestion

Give large amounts of water or warm salty water (2 tablespoons of table salt to a pint of water) to induce vomiting. If this measure is unsuccessful, vomiting may be induced by tickling the back of the patient's throat with a finger. Vomiting should be encouraged until the vomitus is clear. Obtain medical attention if abdominal discomfort persists.

2. Eye Contact

Immediately flush the eyes with large quantities of running water for a minimum of 15 minutes. Hold the eyelids apart during the irrigation to ensure flushing of the entire surface of the eye and lids with water. Do not attempt to neutralize with chemical agents. Obtain medical attention if irritation persists. Oils or ointments should not be used unless directed by a physician.

3. Skin Contact

Immediately flush affected areas with large amounts of water. Do not attempt to neutralize with chemical agents. Obtain medical attention if irritation persists.

4. Inhalation

Remove from contaminated atmosphere. If symptoms of respiratory discomfort persist, see a physician.

VIII. Precautions for Normal Use

A minor spill is defined as a small quantity which can be handled routinely considering the physical and hazardous properties of the product as well as the location of the spill.

Spills of this product can be swept up or washed away with water. This product is soluble.

Spills which are not considered to be minor, which are considered to be an emergency, must be handled according to a predetermined plan. For assistance in developing such a plan, contact Stauffer's Technical Service Department.

IX. Recommended Safety Equipment

Chemical goggles, rubber gloves, contained breathing apparatus for use when product decomposes.

X. Corrosivity to Materials of Construction

This product does not appear to aggressively attack metals. Mild steel is recommended at 80°C and below.

XI. Storage Requirements

Store in dry area. Keep away from flammable products.

XII. Disposal of Unused Material

For assistance in disposing of unused material contact Stauffer's Technical Service Department.

XIII. Disposal of Container

Rinse with water before disposing of container. Do not incinerate unless the container has been thoroughly flushed with water.

XIV. References

Stauffer Data Sheet.

Phosphorous and It's Compounds, by Van Wazer - Vol. 1